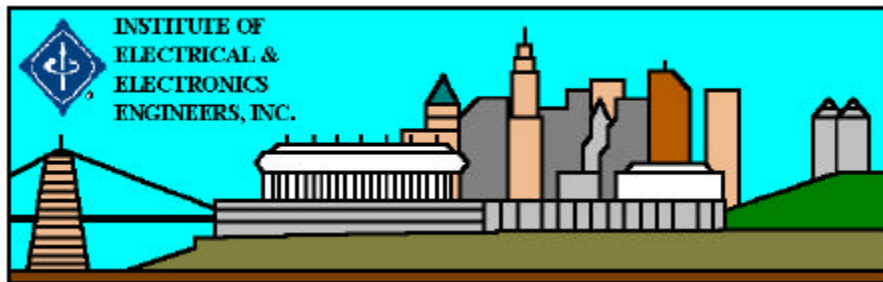


IEEE CINCINNATI
SECTION
NEWSLETTER
NOV./DEC. 2002



NOV./DEC. MEETING
Greater Miami and Ohio Rivers
Conservation - Oxbow, Inc.

DATE: Thursday, December 5, 2002

PLACE : Raffel's – 10160 Reading Road (see below for directions)

TIME : 5:30 p.m. to 7:00 p.m. - Social Time/Dinner
7:00 p.m. to 8:30 p.m. - Program

COST FOR DINNER: \$15.00 which includes a buffet dinner, soft drinks/coffee, tax & gratuity.
Cost for student members - \$10.00

MENU SELECTIONS: BBQ'd Ribs, Baked Herb Crusted Mahi Mahi, Roast Beef in Gravy, Red Skinned Mashed Potatoes, Buttered Corn, Tossed Salad with Dressings, Rolls and Butter, Assorted Cobblers for Dessert, Coffee, Tea Iced Tea, Soft Drinks. There is also a bar available for the purchase of alcoholic drinks. Raffel's is located at 10160 Reading Road, south of Glendale-Milford Road on the east side of Reading. Take I-75 to the Glendale-Milford Rd. Exit, go east on Glendale-Milford Road approximately 3/4 of a mile to Reading Rd. and turn right on Reading.

Please call the Cincinnati Section Voice Mailbox at 513-629-9380, by **Noon, Tuesday, December 3, 2002** if you plan to attend. Please leave your **Name, IEEE Member Number,** and **a daytime telephone number.**

ABOUT THE PRESENTATION: Oxbow, Inc was formed in 1985 by a dedicated group of local conservationists who did not want to see the flood plain of the Greater Miami and Ohio Rivers become a commercial barge shipping center. These individuals all shared a love for the natural beauty of the area and an understanding of the importance of this unique wetland to the flora and fauna of the Tristate area. Starting with a purchase of 27.5 acres, mostly water of the oxbow lake, Oxbow, Inc. now owns nearly 700 acres. Most of this land lies within the area bordered by I-275 on the east, Highway 50 on the west, the exit from I-275 to Hwy 50 on the north, and the Ohio River and Argosy Casino to the south. Oxbow, Inc has also purchased conservation easements on over 300 acres mostly to the north and east of the main properties and bordering the Greater Miami River. This effort, all funded by donations, and carried out by volunteers is a demonstration of how a few individuals with vision and fortitude can make a real difference in the world.

The Oxbow area serves as home to many species of mammals, reptiles and amphibians, fish, mollusks, insects, and plants. The Oxbow area's most important function is serving as a stopover resting area for birds during the Spring and Fall migrations and as a safe haven for birds to rest and roost overnight during the Summer months. Oxbow, Inc. manages the land use of the area mostly through farming leases. There is still a lot of private land in the Oxbow area, and Oxbow, Inc leads tours into the area that respect the rights of the other property owners.

ABOUT THE PRESENTER: Jon Seymour has been a member of Oxbow, Inc since its early days and has been an active fundraiser for Oxbow through participation in the annual Cincinnati Area Bird-a-thon. Jon has a graduate minor in Zoology and is a Ph.D. biochemist. He has been bird watching as a hobby for 35 years and has been an active participant in environmental projects in Hamilton County. He was named to the Oxbow Inc. Board two years ago and is currently vice-president of Oxbow, Inc. and the chairman of their conservation committee.

CHAIR'S MESSAGE

by Tom Grau, Section Chair

The feature presentation at our Section Meeting on October 24, 2002, was given by Mr. Dan Peterson and Mr. Glen Davis, both of Robicon. Robicon has been manufacturing power controllers and variable speed drives since 1964 with installations in 57 countries. They manufacture AC Drives up to 30,000 horsepower, power systems up to 25,000kW, 260kAmp and phase angle & zero-fired SCR Power Controllers from 15-1200 Amps, plus high frequency power supplies for specific applications. The presentation covered technologically-advanced low and medium voltage variable frequency drives for the operation of standard AC induction motors. The theory of how these systems operate within their applications was covered.

As my term two years draws to a close, I want to thank all those IEEE Members who have helped me in making my term a success. Over the past two years we have further defined our Mission and Vision for the Cincinnati Section and have made them public through our Newsletter. Our Executive Committee has been very helpful in conducting the business of the Section and I owe each member a debt of gratitude.

Several members of the Committee have done an "over and above the call" job and I want to recognize them here. A special thanks goes to Jack Beckmeyer for his arrangement work and his attendance at almost all of the Section meetings. Ron Harbaugh stepped in on several occasions to take meeting minutes along with revisions of our bylaws and Nominations Committee work; thanks Ron. Our Newsletter Chair, Bob Morrison and our Treasurer, Orest Melnyk are acknowledged for their work over many years and especially their dedication this year.



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NEW MEMBERS

The following individuals are IEEE members who are new to our Section:

Olatunde P. Adejumobi	Vivek Jain	Yuba R. Shrestha
Ajit Balagopal	Keith D. Jones	Steven Shue
Jack Bonbright	Ashvani K. Madan	C. Sowa
Eric B. Colegate	Sridharan Mahesh	Joseph A. Spade
Amol S. Deshmukh	Shane M. Mahon	James A. Suriano
David M. Dixon	Gaurav Mantro	George A. Vogel
Stephen C. Ebacher	James K. Martin	Kenneth L. Welch
Ayman El-Geneidy	John C. Martin	Richard L. Williams
Michael E. Gangl	Michael C. McCoy	Mayur Yermaneni
David W. Harris	Daniel S. McLaughlin	Paul Yost
George M. Harryman	Dovel T. Myers	Jie Zhou
Jeffrey S. Hitchcock	John P. Necamp	Qihou Zhou
Samuel H. Huang	Alton F. Sanders	Jie Zhu
Stephen I. Isch	Phillip H. Schmidt	
Mohit Jain	Balasubramanian Sethuraman	

We wish to extend our welcome to all of our Section's new members!!!

Scanning the Past: A History of Electrical Engineering from the Past

Submitted by Dick Reiman, Historian

Copyright 1992 IEEE. Reprinted with permission from the IEEE publication, "Scanning the Past" which covers a reprint of an article appearing in the Proceedings of the IEEE Vol. 80, No. 6 June 1992.

Herbert J. Reich

Fifty years ago this month, the PROCEEDINGS (then the PROCEEDINGS OF THE IRE) included a paper by Herbert J. Reich on vacuum tubes used as variable reactance elements. At the time Reich was a professor of electrical engineering at the University of Illinois. In his paper, Reich noted that reactance tubes had been used for the past few years for automatic tuning and frequency modulation. He thought, however, that there had not been published a general discussion of reactance tubes, and he anticipated that his paper might suggest new applications. He included circuit diagrams and derived equations to show how a vacuum tube with suitable circuit elements could serve as a variable capacitive or inductive reactance. A typical circuit used feedback to produce a plate current which was approximately 90 degrees out of phase with the plate voltage. A variation in the voltage applied to the tube grid could produce a substantial variation in the effective reactance and could, for example, change the frequency of a local oscillator in a radio receiver .

Reich was born in 1900 in Staten Island, New York, and graduated in mechanical engineering from Cornell University in 1924. He received a Ph.D. in physics from Cornell in 1928 and taught electrical engineering at the University of Illinois from 1929 to 1944. In 1944 he joined the Radio Research Laboratory at Harvard University and worked there until 1946. This was a laboratory directed by Frederick E. Terman where electronic countermeasures systems were developed. In 1946, Reith became a professor of electrical engineering at Yale University where he taught until 1969.

Reich was the author or coauthor of a number of books on electronics and microwaves, including Theory and Applications of Electron Tubes (1939), Principles of Electron Tubes (1941), Ultra-High Frequency Techniques

(1942), Microwave Theory and Techniques (1953), and Microwave Principles (1957). He also authored more than 60 technical papers, including 16 in the PROCEEDINGS. In 1987, Professor Reich provided me with a list of his publications. In an accompanying letter he expressed regret that he had not submitted to the PROCEEDINGS an article in which he proposed the use of 450 kHz instead of 60 kHz as the intermediate frequency, "in order to avoid whistles and squeals in the output of heterodyne receivers." The article instead was published as a series in Radio News during 1928. He mentioned also a 1927 paper, coauthored with Frederick Bedell, on a stabilized cathode-ray oscilloscope. Reich recalled that he had been a graduate student at Cornell at the time and had not fully appreciated the importance of the instrument. He stated that he "was therefore willing to relinquish my patent rights for \$100!" He later received patents on magnetrons and reflex klystrons. He published several papers on cathode-follower amplifiers, thyratrons, and electronic power converters.

Reich was elected a Fellow of the Institute of Radio Engineers (IRE) in 1949 and a Fellow of the American Institute of Electrical Engineers (AIEE) in 1954. He was the Director of the IRE in 1944 and from 1948 to 1957. He served on at least seven IRE committees and was editor of the IRE TRANSACTIONS ON ELECTRON DEVICES from 1952 to 1954. He also served on the International Electrotechnical Commission from 1960 to 1972.

*James E. Brittain
School of History, Technology, and Society
Georgia Institute of Technology*

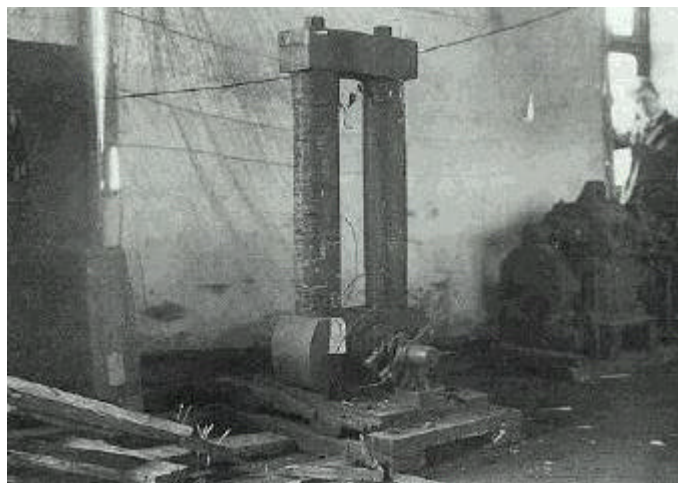
ELECTRICAL WORLD MAGAZINE **125th ANNIVERSARY**

by Bob Morrison, Editor

In 1999, Electrical World Magazine celebrated their 125th anniversary as one of the premier publications for the Electric Power Industry. They presented a history of significant People, Companies, Industry Changes and Innovative Technologies which have served to define the current status of the Electric Power Industry. In the next few months, their article will be reprinted in this *newsletter* (permission granted by McGraw-Hill Publishing Co.)

TECHNOLOGY

Innovative technologies transform the industry



From the earliest times, technology innovations have driven electric power advances

Arc lighting

In 1802, Sir Humphrey Davy passed a high-voltage current between two pieces of carbon and watched a brilliant light arc between them. The arc lamp was born. The first viable electric lamp, the device offered an alternative to gas lighting. Because of its intensity, it could do what other technology of the time could not do -- light large spaces.

Central stations

The neighbors of banker J P Morgan were hopping mad when the banking magnate built a "hideous." and possibly dangerous, powerplant behind his stately Manhattan mansion in the late 1870s. The situation only got worse when the plant burned down and sent sparks flying everywhere. Morgan finally relented and tore his generating station down, but his short-lived extravagance proved that enormous wealth was necessary to obtain electric power in that era. Electricity was impractical for the average man.

However, the development of the central generating station opened the doors to industry growth.

The central station systems showcased the conveniences of having only one electric power provider in a given service area, and made electricity available to the general public.

Electric dynamo

In 1820, Andre Ampere theorized that that a changing magnetic flux through a loop would produce a current in that loop. But 46 years passed before anyone created a practical instrument that would use Ampere's Law to generate electricity. With his invention of the electric dynamo, Germany's Werner von Siemens developed a technology that could conceivably generate a constant current.

The principles behind Siemens's dynamo were the same as those of modern generators. An external source of mechanical energy would rotate an armature through a magnetic field. The changing magnetic flux that resulted would produce electric currents. The invention of the dynamo set the electrical age in motion as it generated large quantities of inexpensive electricity.

Electric motor

While the electric lamp created a need for electricity, it was the electric motor that increased that demand tenfold. In the late 1800s, this technology introduced a means for harnessing electricity to perform simple mechanical tasks.

After Nikola Tesla's 1888 invention of the induction-motor, the industry developed rapidly and many appliances, such as the electric fan, appeared on the scene.

Incandescent lamp

Consider for a moment the world 120 years ago. After sunset, the world depended on candlelight and gas lamps to make the day a little bit longer. Then came a tiny vacuum tube with a piece of carbon inside, operating on the theory that hot objects glow. Thomas Edison's practical incandescent lamp -- which began shedding light on an October evening in 1879 -- not only transformed an industry, it transformed the world.

Many say that the reason Edison's lamp achieved unparalleled success was because of the simplicity of the design. By adhering strictly to Ohm's Law of voltage, Edison recognized that a good filament must be a highly resistive material that would generate a large voltage at a low current.

Though thousands of filaments were tested, once the correct material was found, the lamp was easily reproducible.

TO SUBSCRIBE TO THE ELECTRONIC NEWSLETTER

This newsletter is only available via e-mail or the Section's web page at <http://ieee.cincinnati.fuse.net/> with the exception of new Section members (one issue only) or members who have specifically requested a copy be delivered through the U. S. Mail.

If you are a new Section member and would like to get this newsletter electronically, please contact Bob Morrison (Editor) at 513-287-3697 or by e-mail at j.r.morrison@ieee.org. Provide your name and member number. In case there are questions, please include a daytime telephone number as well.

If you would like the "Snail Mail" version, you must contact Bob Morrison via the above means or call the Section's voice mail at 513-629-9380.

IEEE NEWS

CALL FOR PAPERS - 2003 IEEE Region 4 ELECTRO/INFORMATION TECHNOLOGY (eit) CONFERENCE, JUNE 5-6, 2003 Holiday Inn Select Airport, Indianapolis, Indiana, U.S.A

2003 Electro/Information Technology Conference, sponsored by the IEEE Region 4 (R4), is a conference focusing on presenting basic/applied research results in the fields of electrical and computer engineering as they relate to Information Technology and its applications. The purpose of the conference is to have an annual conference for the IEEE where researchers and industrial investigators can present their latest findings. There will also be exhibits where the latest electro/information technology tools and products will be showcased. This is also an opportunity for professional activities development, workshops and tutorials for IEEE members especially those residing in Region 4.

Keynote/Invited speakers at the eit 2000/2001 conferences included:

Hojjat Adeli, Ohio State University (Neural Networks)
Laurence Wolfe, Chief Information Officer, NIH (Coding Theory)
Mark J. T. Smith, Georgia Institute of Technology (Wavelets)
Lotfi Zadeh, UC Berkeley (Soft Computing)
Martha Sloan, Michigan Technological University (Computers)

Although all recent research areas related to information technology in electrical/computer engineering fields will be considered for presentation at this conference, the following topics will be of particular importance.

Soft Computing, Wireless Communications, Wavelet Transforms, Micro Electromechanical Systems & Mechatronics, Reconfigurable Systems, Middleware Architecture in the IT World, Power Electronics, Electronic Design Automation, Solid State, Consumer Electronics (including Automotive), Intelligent Control Systems, Mathematical Modeling, Error Reduction, Reliability Issues, Telemedicine, Nanotechnology.

For paper submission information format, and deadlines, see the website, <http://www.cis-ieee.org/eit2003/> , under Call For Papers.

For more information, ideas for organizing/chairing sessions, industry participation, tutorials, professional activities sessions, please contact organizing committee members or

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COMING IN 2003: THE IEEE MEMBER DIGITAL LIBRARY

Coming in 2003, the new IEEE Member Digital Library will allow IEEE members to access individual online articles from IEEE-published journals, magazines and conference proceedings with one convenient subscription. Subscribers will pay a monthly fee to access up to 25 articles and papers a month from the current year and the last five years worth of publications. Access will be through the IEEE Xplore (R) online delivery platform.

"This new offering will greatly enhance the scientific and education goals of the IEEE," said Dr. Raymond D. Findlay, IEEE President. "In addition, IEEE publishes the most highly cited information in EE and Computer Science, and online access to a wider range of information will greatly enhance our members' careers."

The IEEE Member Digital Library provides IEEE members with direct online access to the articles and papers in IEEE journals and conference proceedings without requiring subscriptions to the individual publications.

"IEEE members tell us that the number one reason they join is to gain access to technical data," said Findlay. "The IEEE Member Digital Library will prove to be a marked addition to the information IEEE members already gain from individual journal subscriptions and technical society memberships."

IEEE members renewing or joining for the 2003 year will be eligible to subscribe to the IEEE Member Digital Library. Anyone subscribing by December 31, 2002 will receive their first month of the IEEE Member Digital Library for free. The service will be available in January 2003.

For more information on the IEEE Member Digital Library or the first-month free offer, visit www.ieee.org/ieeemdl

Engineers Receive Mixed News on Employment

WASHINGTON (October 14, 2002) - While the unemployment rate for engineers fell for the first time since early 2001, the number of engineering jobs also dropped below 2 million for the first time in five years.

The unemployment rate for all engineers declined from 4.0 percent in the second quarter of 2002 to 3.4 percent in the third quarter, according to figures released last week by the U.S. Department of Labor, Bureau of Labor Statistics. The good news was offset by a substantial drop in engineering jobs, which fell from 2,027,000 to 1,923,000.

Of the major engineering disciplines, mechanical engineers were the hardest hit, losing 49,000 jobs. Aerospace engineers lost 26,000 jobs.

"The very significant decline in the number of engineering jobs is a major concern for all of us," IEEE-USA President LeEarl Bryant said. "We're not sure if these jobs will return when the economy turns up, or if they've been exported to lower-cost overseas locations."

For electrical and electronics engineers, the jobless rate fell from an all-time high of 4.8 percent in the second quarter to 4.0 in the third. Although the rate improved, it is still more than three times as high as it was for the same quarter of 2000 (1.3 percent). Engineering jobs totaled 2,164,000 at that time.

The overall unemployment rate decreased by one-tenth to 5.3 percent.

The number of jobless computer scientists and systems analysts also declined, from 95,000 (5.3 percent) in the second quarter to 84,000 (4.6 percent) in the third. At the same time, the number of employed workers in these fields increased by 35,000 to 1,717,000.

IEEE-USA's Bryant is unsure if the lower unemployment rate is an aberration or a trend.

"Despite the hopeful talk about the recession being over, U.S. engineers and computer scientists aren't out of the woods yet, not by a long shot," she said. "The fourth quarter is always a prime time for job cuts, and outplacement firms are already reporting a lot of corporate calls about their fall layoff plans."

ENGINEERS SEEK SUPPORT FROM CONGRESS TO COMBAT UNEMPLOYMENT, TAKE MESSAGE TO CAPITOL HILL

WASHINGTON (October 25, 2002) -- On October 21, IEEE-USA President LeEarl Bryant and U.S. IEEE Member Stephen Morton distributed more than 500 leaflets, titled "American Engineers at Risk," on Capitol Hill in Washington, D.C. According to Bryant, the purpose of the distribution was "to raise awareness and gain support for IEEE-USA efforts to reduce joblessness among engineers."

IEEE-USA's recommendations on how the U.S. Congress can help solve the growing unemployment problem include: reducing the annual H-1B visa quota; redirecting H-1B visa funded skills training programs to aid displaced engineers; and jump-starting the economy.



On October 21, IEEE-USA President LeEarl Bryant (right) and U.S. IEEE Member Stephen Morton (center) distributed more than 500 leaflets, titled "American Engineers at Risk," on Capitol Hill in Washington, D.C.

The leaflet also identified key factors contributing to the engineering employment crisis, including include: increasing dependence by employers on temporary guest-workers; perma-temping (or substitution of part-time contract workers with few benefits for full-time employees with health and retirement benefits); and outsourcing of engineering jobs to low cost, offshore locations.

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For more information about the Masters of Science in Technology program at Northern Kentucky University, visit the MST homepage at www.nku.edu/~mst, or call (859) 572-6352.

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IEEE MEMBERS SELECT ARTHUR W. WINSTON AS 2003 IEEE PRESIDENT-ELECT

PISCATAWAY, N.J., Nov. 8, 2002 -- Arthur W. Winston, director of the Gordon Institute of Tufts University in Medford, Mass., has been selected 2002 IEEE president-elect. Pending acceptance of the Teller's Committee report by the IEEE Board of Directors, Winston will begin serving as IEEE president on Jan. 1, 2004. He will succeed 2003 IEEE President Michael S. Adler, Vice President of Technology at Mechanical Technology, Inc., Albany, N.Y., and Research Professor at Rensselaer Polytechnic Institute, Troy, N.Y.

Of the 249,352 ballots mailed, 39,059 valid ballots (15.66 percent) were returned. This compares with the 2001 return of 19.80 percent. All results are unofficial until the IEEE Board of Directors accepts the report of the Teller's Committee during their November 16-17 meeting.

The other two candidates for IEEE president-elect were Vijay K. Bhargava, Canada Research Chair in Wireless Communication at the University of Victoria in British Columbia, Canada, and Luis T. Gandia, president of L. Gandia & Associates, Inc., of San Juan, Puerto Rico. Bhargava, Gandia and Winston all were nominated by the Board of Directors. Of the members who voted, 17,949 selected Winston. Bhargava received 11,122 votes and Gandia, 8,884 votes.

Winston, an IEEE Life Fellow, has been an IEEE member since joining in 1955. He served on the IEEE Board of Directors from 1996-1999, holding positions as vice president of Educational Activities and Region 1 director. He has served on numerous committees and taken on many other leadership roles within the organization, including chair of the Foundation Board and the Life Members Committee from 2000-2001. Winston has been

very active in the IEEE Boston Section, serving in several capacities, such as chair in 1993 and secretary from 1991-1992. He was awarded an IEEE Third Millennium Medal in 2000.

Winston has worked at Bell Telephone and the National Research Council, both in Canada; The Massachusetts Institute of Technology; National Research Corporation and Allied Research Corporation before joining the faculty at Tufts University. His technical expertise includes the fields of test and measurement among other areas.

Other Officers Named

The following candidates were elected as IEEE division director, 2003-2004: Division II, Philip T. Krein; Division VI, Richard L. Doyle; and Division X, Enrique H. Ruspini. They will assume office on Jan. 1, 2003

The following candidates were selected as director-elect for 2003: Division III, J. Roberto B. deMarca; Division V, Gene F. Hoffnagle; and Division IX, John A. Reagan. They will take office as director on Jan. 1, 2004. The following candidates were selected as director-elect for 2003-2004: Region 2, Thomas A. Tullia; Region 4, Ronald G. Jensen; Region 6, Robert L. Baldwin; and Region 10, Seiichi Takeuchi. They will take office on Jan. 1, 2005.

James T. Carlo was chosen as president-elect of the IEEE Standards Association. He will take office as IEEE-SA president on Jan. 1, 2004. Elected to serve two-year terms on the Standards Association Board of Governors as members-at-large are Nader Mehravri, Thomas A. Prevost, Dennis Bodson and Harold E. Epstein. They all will take office on Jan. 1, 2003.

IEEE members selected Ralph W. Wyndrum, Jr. to serve as vice president-elect of IEEE Technical Activities. He will succeed 2002 Technical Activities Vice-President Leah H. Jamieson on Jan. 1, 2004.

Elected as IEEE-USA president-elect was John W. Steadman. He will assume the office of IEEE-USA president on 1 Jan. 2004. Taking office as IEEE-USA member-at-large on Jan. 1, 2003, will be Merrill W. Buckley, Jr.

For more information, visit the 2002 IEEE Annual Elections Web page.

IEEE-USA-Supported Cyber Security Research and Development Act Clears Final Congressional Hurdle and Goes to the President

WASHINGTON (November 15, 2002) - The Cyber Security Research and Development Act (H.R. 3394), which IEEE-USA has supported since its introduction, passed the lame-duck House of Representatives by unanimous consent Tuesday and will be sent to the President for his signature.

"IEEE-USA is pleased to see this bill pass," IEEE-USA President LeEarl Bryant said. "It will put some of our nation's best and brightest minds to work protecting against cyber terrorism. We also see advantages for commerce and personal privacy."

The five-year, \$902.85 million bill is designed to address the nation's extraordinary vulnerability to attacks upon computer systems and networks, and the critical national infrastructures that rely upon them (e.g., air traffic control, financial transactions, water systems and electricity grids). It will create new research and education programs at the National Science Foundation (NSF) and the National Institute of Standards and Technology (NIST) to ensure that the United States is better prepared to prevent and combat electronic terrorist attacks.

"Homeland security is the be-all and end-all of why we're back in session right now," said House Science Committee Chairman Sherwood Boehlert (R-NY), who introduced the bill last December with colleagues from both parties. "The nation could be brought to its knees, and we've got to protect against that."

Research Subcommittee Chairman Nick Smith (R-MI) told the press gathering of a recent electronic attack that crippled 13 computer servers that manage Internet traffic.

"While this hour-long attack went nearly unnoticed by routine computer users, a longer attack could cripple communication, infrastructure operations and even national security efforts," Smith said. "We cannot allow attacks like this to happen again."

The proposed legislation is designed to promote more innovative research in cyber security and to attract more senior researchers and students into the field. This will help address the inadequate protection current technology offers, and provide more research and development into better security for computer systems and networks that protect critical aspects of daily life.

The IEEE Cincinnati Section Executive Committee **Member Names and Phone Numbers**

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